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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,068	01/22/2004	Xiaogang Peng	40715-296579	3712

23370 7590 09/26/2006

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EXAMINER
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TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/763,068

Applicant(s)

PENG ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-98 and 100-108 is/are pending in the application.
- 4a) Of the above claim(s) 1-57 and 82-95 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 58-81, 96-98 and 100-108 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

Amendment filed on August 23, 2006 has been entered. Claim 99 has been cancelled. Claims 1-98, and 100-108 are pending in the application. Claims 1-57, and 82-95 are withdrawn from consideration as directed to a non-elected invention.

***Election/Restrictions***

Applicant's election with traverse of Group VI, Claims 58-81 and 96-108, species (A) corresponding to a core/shell structure comprising a core and *single* shell, wherein the core is (i) a II/VI compound and the shell is (i) a II/VI compound and wherein the band gap of the shell material is (b) greater than the band gap of the adjacent core material, in the reply filed on August 23, 2006 is acknowledged. The traversal is on the ground(s) that the election of species requirement is meaningless in view of the elected method claims. The method claims of the present application recite methods for preparing core/shell nanocrystals comprising a core and at least one shell. Searching single or multiple shell nanocrystals is not unduly burdensome on the Examiner. As a result, the restriction to one of species (A)-(D) is unnecessary. Applicants respectfully traverse the election of species between II/VI and III/V materials as a search for II/VI and III/V materials is not unduly burdensome. II/VI and III/V materials can find the same classification as semiconducting materials. Additionally, Applicants respectfully traverse the election between the band gap of the core material being (a) less than the band gap of the shell material or (b) greater than the band gap of the shell material. Band gaps of the core and shell materials are not limitations in method claims of the present invention.

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This is not found persuasive because according to MPEP, should applicant *traverse* on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case.

As to band gaps, band gaps of the core and shell materials are limitations in method claims of the present invention.

The requirement is still deemed proper and is therefore made FINAL.

The Examiner Note: since species (B), (C), and (D) corresponding to a core/multiple shell structure are not elected, claims 69-81, 96-98, 100-108 are withdrawn from consideration as directed to non-elected species.

However, in a case Applicants do not agree that claims 69-81, 96-98, and 100-108 should be withdrawn from consideration as directed to non-elected species, the following Election/Restriction requirement is applied:

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 58-68, drawn to a method for preparing core/shell nanocrystals, classified in class 427, subclass 212.
- II. Claims 69-81, drawn to a method for preparing core/shell/shell nanocrystals, classified in class 427, subclass 214.

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- III. Claims 96-98, 100-108, a method for preparing **radially-doped** core/multiple shell nanocrystals, classified in class 427, subclass 214.

***Distinctness***

The inventions are distinct, each from the other because:

Inventions I, II, and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are not disclosed as capable of use together and they have different designs, modes of operation, and effects because process steps required for e.g. invention II are not required for invention I or III.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

A telephone call was made to Mr. J. Clinton Wimbish on September 20, 2006 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy  
Primary Examiner  
Art Unit 1762

ELENA TSOY  
PRIMARY EXAMINER



September 21, 2006